

Exam Name : Chemistry HNGU

Total Questions : 100

Description :

Q.1 A particle in three dimensional cubic box of a Length L has energy of , the degeneracy of the state is;

Marks 1

Question ID:  
10084223

No	Options Details	Correct Option
1	2	
2	3	
3	6	✓
4	9	

Q.2 Question

	The compound that will behave as an acid in H <sub>2</sub> SO <sub>4</sub> is	
Options for Answer	A	HClO <sub>4</sub>
	B	HNO <sub>3</sub>
	C	CH <sub>3</sub> COOH
	D	H <sub>2</sub> O

Marks 1

Question ID:  
10084224

No	Options Details	Correct Option
1	A null	✓
2	B null	
3	C null	
4	D null	

Q.3

The value of the magnetic quantum number of a  $P_x$  orbital is

Marks1

Question ID:  
10084225

No	Options Details	Correct Option
1	-1 null	
2	0 null	
3	+1 null	
4	Undefined null	✓

Q.4

According to VSEPR model, the shape of  $\text{XeO}_2\text{F}_2$  is

Marks1

Question ID:  
10084226

No	Options Details	Correct Option
1	Octahedral null	
2	Trigonal bipyramidal null	
3	Square planner null	✓
4	Tetrahedral null	

Q.5

The highest occupied molecular orbital of HF is

Marks1

Question ID:  
10084227

No	Options Details	Correct Option
1	Bonding	
2	antibonding	
3	ionic	
4	nonbonding	✓

Q.6

QUESTION

	The least basic among the following is		
Options for Answer	A	Al(OH) <sub>3</sub>	
	B	La(OH) <sub>3</sub>	
	C	Ce(OH) <sub>3</sub>	
	D	Lu(OH) <sub>3</sub>	

Marks1

Question ID:  
10084228

No	Options Details		Correct Option
1	A	null	✓
2	B	null	
3	C	null	
4	D	null	

Q.7

The number of possible isomers for the square planar mononuclear complex  $[(\text{NH}_3)_2\text{M}(\text{CN})_2]$  of a metal M

Marks1

Question ID:  
10084398

No	Options Details		Correct Option
1	3	null	
2	2	null	✓
3	4	null	
4	3	null	

Q.8

The ligand present in vitamin B<sub>12</sub> is

Marks1

Question ID:  
10084637

No	Options Details		Correct Option
1	Porphyrin	null	
2	Corrin	null	✓
3	Phthalocyanine	null	
4	Crown ether	null	

Q.9

QUESTION

	The term symbol for the ground state of nitrogen atom is	
Options for Answer	A	$^3P_0$
	B	$^4P_{3/2}$
	C	$^1P_1$
	D	$^4S_{3/2}$

Marks1

Question ID: 10084638

No	Options Details	Correct Option
1	A null	
2	B null	
3	C null	
4	D null	✓

Q.10

The number of metal-metal bonds in  $[W_2(OPh)_6]$  is

Marks1

Question ID: 10085461

No	Options Details	Correct Option
1	1 null	
2	2 null	
3	3 null	✓
4	4 null	

Q.11

The STYX code of  $B_4H_{10}$

Marks1

Question ID: 10085462

No	Options Details	Correct Option
1	4120 null	
2	4220 null	
3	4012 null	✓
4	3203 null	

Q.12

QUESTION

	The complex which obeys the 18 electron rule is:	
Options for Answer	A	$\text{Fe}(\text{CO})_4$
	B	$\text{Ni}(\text{CO})_3(\text{PPh}_3)$
	C	$\text{Cr}(\text{CO})_3$
	D	$\text{Cr}(\text{C}_2\text{H}_5)_2$

Marks

1

Question ID:

10085465

No	Options Details		Correct Option
1	A	null	
2	B	null	✓
3	C	null	
4	D	null	

Q.13

QUESTION

	The correct order of basicity of lanthanide ions is:	
Options for Answer	A	$\text{La}^{3+} > \text{Lu}^{3+} > \text{Ce}^{3+} > \text{Eu}^{3+}$
	B	$\text{Ce}^{3+} > \text{Lu}^{3+} > \text{La}^{3+} > \text{Eu}^{3+}$
	C	$\text{Lu}^{3+} > \text{Ce}^{3+} > \text{Eu}^{3+} > \text{La}^{3+}$
	D	$\text{La}^{3+} > \text{Ce}^{3+} > \text{Eu}^{3+} > \text{Lu}^{3+}$

Marks

1

Question ID:

10085972

No	Options Details		Correct Option
1	A	null	
2	B	null	
3	C	null	
4	D	null	✓

<div>Q.14</div> <div>The IUPAC name of the complex <math>[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}</math> is:</div>			<div>Question ID:</div> <div>10085974</div>
Marks	1		

No	Options Details		Correct Option
1	tetraammine dichloro cobalt (III) chloride	null	✓
2	dichloro tetraammine cobalt (III) chloride	null	
3	tetraammine dichloro cobalt (IV) chloride	null	
4	tetraammine dichloro cobalt (II) chloride	null	

<div>Q.15</div> <div>Choose the <b>incorrect</b> statement from the following.</div>			<div>Question ID:</div> <div>10085976</div>
Marks	1		

No	Options Details		Correct Option
1	A catalyst alters the Gibbs free energy of activation.		
2	A catalyst does not alter the Gibbs free energy of the reaction.		
3	Catalyst poisons usually interfere with the catalytic cycle by the formation of very unstable complexes.		✓
4	Thermodynamically unfavourable reactions cannot be made favourable by a catalyst.		

<div>Q.16</div> <div> <div>QUESTIONS</div> <div> <div></div> <div>The Symmetry point group of Propyne is</div> </div> </div>			<div>Question ID:</div> <div>10085978</div>
Marks	1		

No	Options Details		Correct Option
1	A	null	
2	B	null	✓
3	C	null	
4	D	null	

Q.17

QUESTIONS

Question	The lattice parameters for monoclinic crystal are		
Options for Answer	A	$a \neq b \neq c ; \alpha = \gamma = 90^0$	
	B	$a = b \neq c ; \alpha \neq \beta \neq \gamma$	
	C	$a \neq b \neq c ; \alpha \neq \beta \neq \gamma$	
	D	$a = b = c ; \alpha = \gamma = 90^0$	

Marks

1

Question ID:  
10085980

No	Options Details		Correct Option
1	A	null	✓
2	B	null	
3	C	null	
4	D	null	

Q.18

QUESTIONS

Question	For the vibrational Raman spectrum of a <u>homonuclear</u> diatomic molecules, the selection rule under harmonic approximation is		
Options for Answer	A	$\Delta V = 0$ only	
	B	$\Delta V = \pm 1$ only	
	C	$\Delta V = \pm 2$ only	
	D	$\Delta V = 0, \pm 1$	

Marks

1

Question ID:  
10085982

No	Options Details		Correct Option
1	A	null	
2	B	null	✓
3	C	null	
4	D	null	

Q.19

An element ‘X’ emits successively two β particles, one α particle, one positron and one neutron. The mass and atomic numbers of the element are decreased by, respectively,

Marks1

Question ID:  
10085985

No	Options Details		Correct Option
1	4 and 1	null	
2	5 and 1	null	✓
3	3 and 2	null	
4	3 and 1	null	

Q.20

Question

In an experiment, 50 ml of 0.1M solution of a salt reacted with 25 ml of 0.1 M solution of sodium sulphite. The half equation for the oxidation of sulphite ion is:  
$$\text{SO}_{3(\text{aq})}^{2-} + \text{H}_2\text{O} \longrightarrow \text{SO}_{4(\text{aq})}^{2-} + 2\text{H}_{(\text{aq})}^{+} + 2\text{e}^{-}$$
  
If the oxidation number of the metal in the salt was 3, what would be the new oxidation number of the metal?

Options for Answer

A	0
B	1
C	2
D	4

Marks1

Question ID:  
10085987

No	Options Details		Correct Option
1	0	null	
2	1	null	
3	2	null	✓
4	4	null	



<div>Q.21</div> <div>Thermal decomposition of a compound is of first order. If 50% of a sample of the compound is decomposed in 120 minute show long will it take for 90% of the compound to decompose?</div>			<div>Question ID:</div> <div>10085994</div>
Marks	1		

No	Options Details	Correct Option
1	399 min	✓
2	410 min	
3	250 min	
4	120 min	

<div>Q.22</div> <div> <div>Question</div> <div> <div>Solubility product of a salt AB is <math>1 \times 10^{-8} \text{ M}^2</math> in a solution in which the concentration of <math>\text{A}^+</math> ions is <math>10^{-3} \text{ M}</math>. The salt will precipitate when the concentration of <math>\text{B}^-</math> ions is kept</div> <div> <div>Options for Answer</div> <div> <div>A</div> <div>between <math>10^{-8} \text{ M}</math> to <math>10^{-7} \text{ M}</math></div> <div>B</div> <div>between <math>10^{-7} \text{ M}</math> to <math>10^{-6} \text{ M}</math></div> <div>C</div> <div><math>&gt;10^{-5} \text{ M}</math></div> <div>D</div> <div><math>&lt;10^{-8} \text{ M}</math></div> </div> </div> </div> </div>			<div>Question ID:</div> <div>10085996</div>
Marks	1		

No	Options Details	Correct Option
1	A null	
2	B null	
3	C null	✓
4	D null	

<div>Q.23</div> <div>The activation energy of a reaction at a given temperature is found to be <math>2.303 \text{ RT J mol}^{-1}</math>. The ratio of rate constant to the Arrhenius factor is;</div>			<div>Question ID:</div> <div>10085998</div>
Marks	1		

No	Options Details	Correct Option
1	0.1 null	✓
2	0.01 null	
3	0.001 null	
4	0.2 null	

Q.24

To a 100 ml solution of 0.1 M CH<sub>3</sub>COONa and 0.1 M CH<sub>3</sub>COOH, 0.4 gm of solid NaOH was added. Assuming volume remains constant, calculate the change in pH value? Given that pK<sub>a</sub> (CH<sub>3</sub>COOH) = 4.74.

Marks1

Question ID:  
10086001

No	Options Details	Correct Option
1	0.125null	
2	0.225null	
3	0.001null	
4	0.872null	✓

Q.25

Out of the following the one which is not an excitation source for IR spectrometer is

Marks1

Question ID:  
10086003

No	Options Details	Correct Option
1	Tugsten filament lamp	
2	Nerst glower	
3	Deuterium lamp	✓
4	Mercury arc	

Q.26

The number of IR active vibrational normal modes of CO<sub>2</sub> is

Marks1

Question ID:  
10086055

No	Options Details	Correct Option
1	Two null	
2	Three null	✓
3	Four null	
4	Five null	

Q.27

A weak electrolyte, AB, is 5% dissociated in aqueous solution. What is the freezing point of a 0.100 molal aqueous solution of AB?  $K_f$  for water is 1.86 deg/molal.

Marks1

Question ID:  
10086057

No	Options Details	Correct Option
1	-3.8 °C null	
2	-0.1953 °C null	✓
3	-1.7 °C null	
4	- 0.78 °C null	

Q.28

When  $\text{FeCl}_3$  solution is added to NaOH a negatively charged sol is obtained. It is due to the,

Marks1

Question ID:  
10086060

No	Options Details	Correct Option
1	Presence of basic group null	
2	Preferential adsorption of $\text{OH}^-$ ions null	✓
3	Self dissociation null	
4	Electron capture by sol particles null	

Q.29

Half life period for a first order reaction is 20 minutes. How much time is required to change the concentration of the reactants from 0.08 M to 0.01M?

Marks1

Question ID:  
10086062

No	Options Details	Correct Option
1	20 minutes	
2	60 minutes	✓
3	40 minutes	
4	50 minutes	

Q.30

The reaction  $A_{(g)} + 2B_{(g)} \rightleftharpoons C_{(g)} + D_{(g)}$  is an elementary process. In an experiment, the initial partial pressure of A and B are  $P_A = 0.60$  and  $P_B = 0.80$  atm. When  $P_C = 0.2$  atm the rate of reaction relative to the initial rate is:

Marks

1

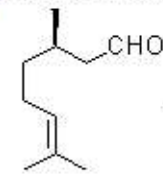
Question ID:

10086066

No	Options Details		Correct Option
1	1/48	null	
2	1/24	null	
3	9/16	null	
4	1/6	null	✓

QUESTION

The major product formed in the following conversation is:



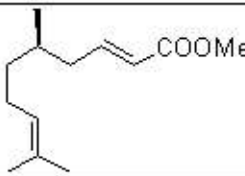
Citronellal

i)  $\text{CH}_2(\text{COOMe})_2$   
NaOMe

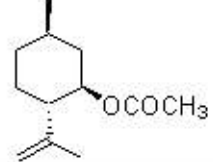
ii) Heat

Options for Answer

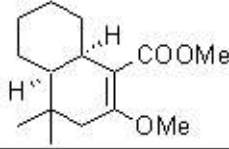
A



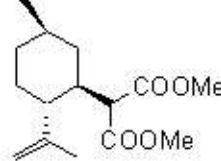
B



C



D



Marks

1

Question ID:  
10086069

No	Options Details		Correct Option
1	A	null	
2	B	null	
3	C	null	✓
4	D	null	

Q.32

QUESTION

The major product formed in the following transformation is:

Reaction scheme: 4-ethoxy-2-phenylcyclohexanone reacts with i) PhMgBr and ii) H<sup>+</sup> to form a product.

Options for Answer	A	
	B	
	C	
	D	

Marks

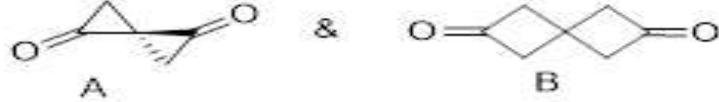
1

Question ID:  
10086072

No	Options Details		Correct Option
1	A	null	
2	B	null	
3	C	null	
4	D	null	✓

Q.33

Choose the correct statement for the following spiranes from the statement given below.



Marks

1

Question ID:  
10086075

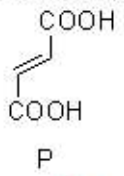
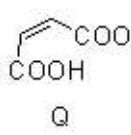
No	Options Details		Correct Option
1	A is optically active and dis-symmetric; B is optically inactive and symmetric	null	
2	A is optically active and Asymmetric; B is optically active and symmetric	null	
3	A is optically inactive and dis-symmetric; B is optically active and symmetric	null	✓
4	A is optically inactive and Asymmetric; B is optically inactive and symmetric	null	

<b>Q.34</b> <div>Reaction of cyclohexyl benzyl ether with hydrogen in the presence of 10% Pd/C yields</div>		
<b>Marks</b> <div>1</div>		<b>Question ID:</b> 10086078
No	Options Details	Correct Option
1	Cyclohexanol and toluene	✓
2	Cyclohexanol and benzyl alcohol	
3	Cyclohexane and benzyl alcohol	
4	Cyclohexane and toluene	

<b>Q.35</b> <div>The most appropriate reagent suitable for the conversion of 2-octyne into trans-2-octene is</div>		
<b>Marks</b> <div>1</div>		<b>Question ID:</b> 10086081
No	Options Details	Correct Option
1	Zinc and acetic acid	
2	10% Pd/C	
3	Litium in liquid ammonia	✓
4	Hydrazine hydrate	

<b>Q.36</b> <div> <div>QUESTION</div> <div> <div>The most appropriate set of reagents for carrying out the following conversation is:</div> <div> </div> </div> </div>		
<b>Marks</b> <div>1</div>		<b>Question ID:</b> 10086083
No	Options Details	Correct Option
1	A null	
2	B null	
3	C null	
4	D null	✓

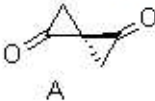
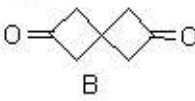
Q.37		The major product formed when (3R,4S)-3,4-dimethylhexa-1,5-diene is heated at 240°C is:	
Marks		1	
		Question ID: 10086085	
No	Options Details		Correct Option
1	(2Z,6Z)-octa-2,6-diene		
2	(2E,6E)-octa-2,6-diene		
3	(2E,6Z)-octa-2,6-diene		✓
4	(2Z,6E)-octa-2,6-diene		

Q.38		<div> <div>QUESTION</div> <div> <p>The correct set of statement with respect to following pair of reactions is:</p> <div> <div>  <div>P</div> </div> <div> <math>\xrightarrow{\text{Br}_2}</math> </div> <div>X</div> </div> <div> <div>&amp;</div> <div>  <div>Q</div> </div> <div> <math>\xrightarrow{\text{Br}_2}</math> </div> <div>Y</div> </div> </div> <div> <div>i)</div> <div>The reaction are stereospecific</div> </div> <div> <div>ii)</div> <div>X is erythro and Y is threo isomer</div> </div> <div> <div>iii)</div> <div>X is threo and Y is erythro isomer</div> </div> <div> <div>iv)</div> <div>Each of P &amp; Q gives a mixture of X and Y</div> </div> </div>	
Marks		1	
		Question ID: 10086089	
No	Options Details		Correct Option
1	(i) & (ii)	null	✓
2	(i) & (iii)	null	
3	(i) & (iv)	null	
4	(ii) & (iv)	null	



Q.39

QUESTION

	Choose the correct statement for the following spiranes from the statement given below. <div> &amp; </div>	
Options for Answer	A	A is optically active and dis-symmetric; B is optically inactive and symmetric
	B	A is optically active and Asymmetric; B is optically active and symmetric
	C	A is optically inactive and dis-symmetric; B is optically active and symmetric
	D	A is optically inactive and Asymmetric; B is optically inactive and symmetric

Marks

1

Question ID:  
10086092

No	Options Details		Correct Option
1	A	null	✓
2	B	null	
3	C	null	
4	D	null	

Q.40

In the proton decoupled <sup>13</sup>C NMR spectrum of 7-norbornanone, the number of signal obtained is

Marks

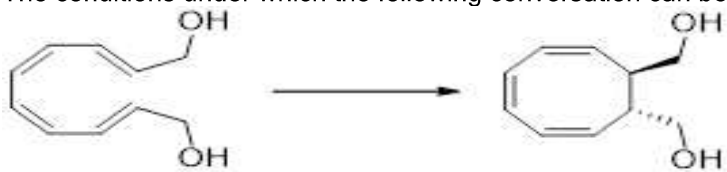
1

Question ID:  
10086094

No	Options Details		Correct Option
1	7	null	
2	3	null	✓
3	4	null	
4	5	null	

Q.41

The conditions under which the following conversation can be best described as:



Marks 1

Question ID:  
10086095

No	Options Details		Correct Option
1	Photochemical 8n disrotatory electrocyclic reaction	null	
2	Photochemical 8n conrotatory electrocyclic reaction	null	
3	Thermal 8n disrotatory electrocyclic reaction	null	
4	Thermal 8n conrotatory electrocyclic reaction	null	✓

Q.42

When  $\ddot{\text{Y}}$ -hydrogen atoms are present (for the formation of six-membered cyclic TS) then the product is an oxime or the corresponding nitroso dimer. This reaction which is very important synthetically is known as,

Marks 1

Question ID:  
10086096

No	Options Details		Correct Option
1	Norrish type I	null	
2	Norrish type II	null	
3	Barton reaction	null	✓
4	Photopinacolisation	null	

Q.43

The one among the following has highest dipole moment.

Marks 1

Question ID:  
10086097

No	Options Details		Correct Option
1	Napthalene	null	
2	Anthracene	null	
3	Phenanthrene	null	
4	Azulene	null	✓

**Q.44**

Consider the following statements for [18]-annulene;

[A] It is aromatic

[B] The inner protons resonate at  $\delta$  9.28 in its proton NMR spectrum.

[C] There are six proton in the shielded zone

The correct statements are:

### Marks

1

**Question ID:**

10086098

No	Options Details	Correct Option
1	A, B, C	
2	A and B Only	
3	B and C Only	
4	A and C Only	✓

**Q.45**

Among the following, an example of a “Green Synthesis” is;

### Marks

1

**Question ID:**

10086099

No	Options Details	Correct Option
1	Synthesis of malachite green      null	
2	Friedel-Craft's acylation of anisole with Ac <sub>2</sub> O/Anhydrous AlCl <sub>3</sub> null	
3	Jones' oxidation of benzyl alcohol to benzoic acid      null	
4	Diels-Alder reaction of furan and maleic acid in water      null	✓

**Q.46**

The Baeyer's angle strain is expected to be maximum in,

### Marks

1

**Question ID:**

10086100

No	Options Details	Correct Option
1	Cyclodecane null	✓
2	Cyclopentane null	
3	Cyclohexane null	
4	Cyclooctane null	

<div>Q.47</div> <div>Which of the following gives the M<sup>+</sup> peak as the base peak in its mass spectrum?</div>			<div>Marks1</div> <div>Question ID: 10086101</div>		
No	Options Details			Correct Option	
1	Phenol	null			✓
2	Bromobenzene	null			
3	Benzyl alcohol	null			
4	Benzophenone	null			

<div>Q.48</div> <div>The gas evolved due to anaerobic degradation vegetation causes:</div>			<div>Marks1</div> <div>Question ID: 10086103</div>		
No	Options Details			Correct Option	
1	Global warming				✓
2	Acid rain				
3	Ozone hole				
4	Metal corrosion				

<div>Q.49</div> <div>What is the name of the conceptual framework in which the research is carried out?</div>			<div>Marks1</div> <div>Question ID: 10090663</div>		
No	Options Details			Correct Option	
1	Research design				✓
2	Research paradigm				
3	Synopsis of Research				
4	Research hypothesis				

--	--	--	--	--	--

Q.50		Which scientific method focuses on testing hypothesis developed from theories?	
Marks		1	Question ID: 10090664
No	Options Details		Correct Option
1	Deductive method		✓
2	Inductive method		
3	Hypothesis method		
4	Pattern method		

Q.51		The classification of studies into exploratory, descriptive, analytical, or predictive research is based on	
Marks		1	Question ID: 10090665
No	Options Details		Correct Option
1	Logic of the research		
2	Outcome of the research		
3	Process of the research		
4	Purpose of the research		✓

Q.52		The government of India conducts census after every 10 years. The method of research used in this process is	
Marks		1	Question ID: 10090666
No	Options Details		Correct Option
1	Case Study		
2	Developmental		
3	Survey		✓
4	Experimental		

Q.53		Fieldwork-based research is classified as	
Marks		1	Question ID: 10090667
No	Options Details		Correct Option
1	Empirical		✓
2	Historical		
3	Experimental		
4	Biographical		

Q.54            The two main approaches of a research are		
Marks            1		Question ID: 10090668
No	Options Details	Correct Option
1	Data collection and data analysis	
2	Surveys and questionnaires	
3	Sampling and data collection	
4	Qualitative and quantitative	✓

Q.55            Research is		
Marks            1		Question ID: 10090669
No	Options Details	Correct Option
1	A purposeful, systematic activity	✓
2	Conducted for purely academic purposes	
3	Conducted to answer questions about practical issues.	
4	A random and unplanned process of discovery.	

Q.56            Which one of the following is not a quality of a researcher.		
Marks            1		Question ID: 10090670
No	Options Details	Correct Option
1	Unison with that of which he is in search	✓
2	He must be of alert mind	
3	Keenness in enquiry	
4	His assertion to outstrip the evidence	

--

<div><div>Q.57</div><div>The result of setting out a reasoned argument in steps is known as</div></div>		
<div>Marks1</div>		<div>Question ID: 10090671</div>
No	Options Details	Correct Option
1	A comparison	
2	A debate	✓
3	An evaluation	
4	An analysis	

<div><div>Q.58</div><div>Which of the following is not a characteristic of a researcher?</div></div>		
<div>Marks1</div>		<div>Question ID: 10090672</div>
No	Options Details	Correct Option
1	Industrious and persistent	
2	Specialist rather than a generalist	
3	Objective	
4	Not versatile in his interest and even in his native abilities	✓

<div><div>Q.59</div><div>In the context of survey research, the following steps are taken in a certain order (I) Sampling (II) Inference (III) Data analysis (IV) Data collection</div></div>		
<div>Marks1</div>		<div>Question ID: 10090673</div>
No	Options Details	Correct Option
1	(II), (III), (I), (IV)	
2	(I), (IV), (III), (II)	✓
3	(III), (II), (IV), (I)	
4	(IV), (I), (II), (III)	

Q.60

Which of the following is not the requirement of a hypothesis?

Marks

1

Question ID:  
10090674

No	Options Details	Correct Option
1	Be based on facts	
2	Be conceivable	
3	Contradict the knowledge of nature	✓
4	Allow consequences to be deduced	

Q.61

The first question that a researcher is interested in the application of Statistical techniques to his problem have to ask is;

Marks

1

Question ID:

10090675

No	Options Details	Correct Option
1	Whether the data could be quantified	✓
2	Whether appropriate statistical techniques are available	
3	Whether analysis of data would be possible	
4	Whether worthwhile inferences could be drawn	

Q.62

The correlation between intelligent test scores and grades is

Marks

1

Question ID:

10090676

No	Options Details	Correct Option
1	Positives	✓
2	Negative	
3	Perfect	
4	No Correlation	



Q.63Hypothesis cannot be stated in		
Marks1		Question ID: 10090677
No	Options Details	Correct Option
1	Declarative terms	
2	Null hypothesis and question form terms	
3	General terms	✓
4	Directional terms	

Q.64Research hypotheses are;		
Marks1		Question ID: 10090678
No	Options Details	Correct Option
1	A review of current research	
2	Statements of predicted relationships between variables	
3	Stated such that they can be confirmed or refuted	
4	"Statements of predicted relationships between variables" and "Stated such that they can be confirmed or refuted"	✓

Q.65What is the purpose of the conclusion in a research report?		
Marks1		Question ID: 10090679
No	Options Details	Correct Option
1	It explains how concepts were operationally defined and measured.	
2	It summarizes the key findings in relation to the research questions.	✓
3	It contains a useful review of the relevant literature.	
4	It outlines the methodological procedures that were employed.	

Q.66Which of the following is an example of a directional hypothesis?		
Marks1		Question ID: 10090680
No	Options Details	Correct Option
1	There will be a difference between the students' reading levels.	
2	There will be a difference between lecture and Group instruction.	
3	Group instruction is more effective than lecture in the Elementary classroom.	✓
4	There will be an increase in learning.	

Q.67To test null hypothesis, a researcher uses		
Marks1		Question ID: 10090681
No	Options Details	Correct Option
1	t-test	
2	ANOVA	
3	Chi-square test	✓
4	Factorial Analysis	

Q.68Extraneous variables are essentially		
Marks1		Question ID: 10090682
No	Options Details	Correct Option
1	Independent variables	✓
2	Dependent variables	
3	Independent or dependent	
4	Neither independent nor dependent	

--

<b>Q.69</b> The characteristics of scientific method of research is		
<b>Marks</b> 1		<b>Question ID:</b> 10090683
<b>No</b>	<b>Options Details</b>	<b>Correct Option</b>
1	Empiricism	
2	Objectivity	
3	Systematic	
4	All of the above	✓

<b>Q.70</b> Bibliography given in a research report:		
<b>Marks</b> 1		<b>Question ID:</b> 10090684
<b>No</b>	<b>Options Details</b>	<b>Correct Option</b>
1	Has no relevance to research	
2	Shows vast knowledge of the researcher	
3	Helps those interested in further research	✓
4	All the above	

<b>Q.71</b> The Report submitted when there is a time lag between data collection and presentation of result is called _____		
<b>Marks</b> 1		<b>Question ID:</b> 10090685
<b>No</b>	<b>Options Details</b>	<b>Correct Option</b>
1	Thesis	
2	Interim report	✓
3	Summary report	
4	Article	

--	--	--

Q.72            The correlation coefficient is used to determine _____		
Marks            1		Question ID: 10090686
No	Options Details	Correct Option
1	A specific value of the y-variable given a specific value of the x-variable	
2	A specific value of the x-variable given a specific value of the y-variable	
3	The strength of the relationship between the x and y variables	✓
4	None of these alternatives is correct.	

Q.73            The value of degree of freedom (d.f.) in two sample t-test is		
Marks            1		Question ID: 10090687
No	Options Details	Correct Option
1	df = (n,+n <sub>2</sub> )	
2	df = (n,- n <sub>2</sub> )	
3	df = (n,+n <sub>2</sub> -2)	✓
4	df = (n,+n <sub>2</sub> +1)	

Q.74            A satisfactory statistical quantitative method should not possess one of the following qualities:		
Marks            1		Question ID: 10090688
No	Options Details	Correct Option
1	Flexibility	✓
2	Measurability	
3	Comparability	
4	Appropriateness	

--

Q.75

Summarizing raw data and displaying them on compact statistical tables for analysis is

Marks

1

Question ID:  
10090689

No	Options Details	Correct Option
1	Tabulation	✓
2	Coding	
3	Transcription	
4	Editing	

Q.76

The format of thesis writing is the same as in:

Marks

1

Question ID:  
10090690

No	Options Details	Correct Option
1	Presenting a workshop	
2	A research dissertation	✓
3	Preparation of Article	
4	Writing of seminar representation	

Q.77

The degrees of freedom for the chi square test statistics when testing for independence in a contingency table with 4 rows and 4 columns would be

Marks

1

Question ID:  
10090691

No	Options Details	Correct Option
1	9	✓
2	6	
3	4	
4	5	

Q.78

Calculate chi square value: Event-x Expected-60 Observed-52 Event-y Expected-40 Observed-48

Marks

1

Question ID:  
10090692

No	Options Details	Correct Option
1	2.77	
2	2.67	✓
3	3.33	
4	3.67	

Q.79

Test to be applied when the number of observations are less than 30 and variance is not known is called:

Marks

1

Question ID:  
10090693

No	Options Details	Correct Option
1	Chi square test	
2	t test	✓
3	f test	
4	z test	

Q.80

To determine whether the test statistic of ANOVA is statistically significant, it can be compared to a critical value. What two pieces of information are needed to determine the critical value?

Marks

1

Question ID:  
10090694

No	Options Details	Correct Option
1	sample size, number of groups	✓
2	expected frequency, obtained frequency	
3	mean, sample standard deviation	
4	MSTR, MSE	

Q.81

In ANOVA with 4 groups and a total sample size of 44, the computed F statistic is 2.33 In this case, the p-value is:

Marks

1

Question ID:  
10090695

No	Options Details	Correct Option
1	exactly 0.05	
2	less than 0.05	
3	greater than 0.05	✓
4	cannot tell - it depends on what the SSE is	

Q.82		What would happen if instead of using an ANOVA to compare 10 groups, you performed multiple t tests?	
Marks		1	Question ID: 10090696
No	Options Details		Correct Option
1	Nothing, there is no difference between using an ANOVA and using a t-test.		
2	Nothing serious, except that making multiple comparisons with a t-test requires more computation than doing a single ANOVA.		
3	Sir Ronald Fischer would be turning over in his grave; he put all that work into developing ANOVA, and you use multiple t-tests		
4	Making multiple comparisons with a t-test increases the probability of making a Type I error.		✓

Q.83		Analysis of variance is a statistical method of comparing the _____ of several populations.	
Marks		1	Question ID: 10090697
No	Options Details		Correct Option
1	standard deviations		
2	variances		
3	Means		✓
4	proportions		

Q.84		“Uses a limited range of words which sometimes affects the clarity of expression” can be a rubric for assessing	
Marks		1	Question ID: 10090698
No	Options Details		Correct Option
1	Grammar		
2	Vocabulary		✓
3	Fluency		
4	Pronunciation		

Q.85

Prerna read a story to her students, filled with sound effects and interesting voices. Afterwards, she asks them questions about the specific sounds or unique ways characters spoke. What skill is Prerna primarily assessing in the scenario?

Marks1

Question ID:  
10090699

No	Options Details	Correct Option
1	Reading	
2	Listening	✓
3	Speaking	
4	Writing	

Q.86

A proficiency test always assesses

Marks1

Question ID:  
10090700

No	Options Details	Correct Option
1	The level of language that learners have reached	✓
2	The language that students have been taught	
3	The multisensory learning experiences	
4	The language of daily conversation	

Q.87

Which of the following sentences is grammatically correct?

Marks1

Question ID:  
10090701

No	Options Details	Correct Option
1	Me and my friend went to the park.	
2	My friend and I went to the park.	✓
3	I and my friend went to the park.	
4	My friend and me went to the park.	



Q.88                      Despite the _____, the team managed to win the championship.		
Marks                      1		Question ID: 10090702
No	Options Details	Correct Option
1	Adversity	✓
2	Celebration	
3	Victory	
4	Strategy	

Q.89                      Find the missing number in the following series? 1, 3, 4, 8, 15, 27, ?		
Marks                      1		Question ID: 10090703
No	Options Details	Correct Option
1	45	
2	50	✓
3	55	
4	60	

Q.90                      If ‘CERTAIN’ is coded as ‘XVIGZRM’ in a particular code language, then how ‘MUNDANE’ be coded in that language?		
Marks                      1		Question ID: 10090704
No	Options Details	Correct Option
1	NFMWZMX	
2	VMZWMFN	
3	NFMWZMV	✓
4	MIMXZMV	

Q.91                      Find the odd pair of words.		
Marks                      1		Question ID: 10090705
No	Options Details	Correct Option
1	Room : House	✓
2	Atom : Electron	
3	Car : Engine	
4	Milk : Water	

--

Q.92

A man’s monthly income is Rs. 1,400. What should be his average monthly expenditure so that he is able to save 3,600 in a year?

Marks

1

Question ID:

10090706

No	Options Details	Correct Option
1	1000	
2	1100	✓
3	1150	
4	1200	

Q.93

In a group of 40 people, 25 speak English and 20 speak both Hindi and English. All the people speak at least one of the two languages. How many people speak Hindi?

Marks

1

Question ID:

10090707

No	Options Details	Correct Option
1	15	✓
2	20	
3	25	
4	30	

Q.94

A computer consists of

Marks

1

Question ID:

10090708

No	Options Details	Correct Option
1	A central processing unit	
2	A memory	
3	Input and output unit	
4	All of the above	✓

--

Q.95A byte consists of		
Marks1		Question ID: 10090709
No	Options Details	Correct Option
1	One bit	
2	Four bits	
3	Eight bits	✓
4	Sixteen bits	

Q.96ALU of a computer normally contains a number of high-speed storage elements called		
Marks1		Question ID: 10090710
No	Options Details	Correct Option
1	Semiconductor memory	
2	Registers	✓
3	Hard disks	
4	Magnetic disk	

Q.97RAM is used as short memory as it is		
Marks1		Question ID: 10090711
No	Options Details	Correct Option
1	Expensive	
2	Small capacity	
3	Programmable	
4	Volatile	✓

Q.98Which of the following will be required to produce high quality graphics?		
Marks1		Question ID: 10090712
No	Options Details	Correct Option
1	RGB monitor	
2	Plotter	✓
3	Ink-jet printer	
4	Laser printer	

--

Q.99

How many NMR signals would you expect from cis-1,2-dimethyl cyclopropane and trans-1,2-dimethyl cyclopropane?

Marks

1

Question ID:

10096118

No	Options Details	Correct Option
1	2-singals for cis-1,2-dimethyl cyclopropane & 3-signals for trans-1,2-dimethyl cyclopropane	
2	3-singals for cis-1,2-dimethyl cyclopropane & 4-signals for trans-1,2-dimethyl cyclopropane	
3	4-singals for cis-1,2-dimethyl cyclopropane & 3-signals for trans-1,2-dimethyl cyclopropane	✓
4	3-singals for cis-1,2-dimethyl cyclopropane & 2-signals for trans-1,2-dimethyl cyclopropane	

<div>Q.100</div> <div>Which of the following techniques may be used to probe the kinetics of inclusion complex formation between <math>\beta</math>-cyclodextrin and cholesterol?</div>			<div>Question ID:</div> <div>10096119</div>
Marks	1		
No	Options Details		Correct Option
1	Isothermal titration calorimetry		
2	NMR spectroscopy		✓
3	X-ray diffraction		
4	Cyclic voltammetry		